



SEQUENCE LISTING

<110> Lomonossoff, George P.

Johnson, John E.

<120> Modified Plant Viruses as Vectors

<130> DOW-04647

<140> 09/580,704

<141> 2000-05-30

<160> 22

<170> PatentIn version 3.1

<210> 1

<211> 120

<212> DNA

<213> Cowpea mosaic virus

<220>

<221> CDS

<222> (1)..(120)

<223>

<400> 1

gga cct gtt tgt gct gaa gcc tca gat gtg tat agc cca tgt atg ata 48
Gly Pro Val Cys Ala Glu Ala Ser Asp Val Tyr Ser Pro Cys Met Ile
1 5 10 15

gct agc act cct cct gct cca ttt tca gac gtt aca gca gta act ttt 96
Ala Ser Thr Pro Pro Ala Pro Phe Ser Asp Val Thr Ala Val Thr Phe
20 25 30

gac tta atc aac ggc aaa ata act 120
Asp Leu Ile Asn Gly Lys Ile Thr
35 40

<210> 2

<211> 40

<212> PRT

<213> Cowpea mosaic virus

RECEIVED

JUN 18 2002

TECH CENTER 1600/2900

G12

32
-1-

<400> 2

Gly Pro Val Cys Ala Glu Ala Ser Asp Val Tyr Ser Pro Cys Met Ile
1 5 10 15

Ala Ser Thr Pro Pro Ala Pro Phe Ser Asp Val Thr Ala Val Thr Phe
20 25 30

Asp Leu Ile Asn Gly Lys Ile Thr
35 40

<210> 3

<211> 81

<212> DNA

<213> Foot-and-mouth disease virus

<220>

<221> CDS

<222> (3)..(80)

<223>

<400> 3

ct agc act tat agt aga aat gct gtt cct aat ttg aga gga gat ctt
Ser Thr Tyr Ser Arg Asn Ala Val Pro Asn Leu Arg Gly Asp Leu
1 5 10 15

47

caa gtt ttg gct caa aag gtt gct cgg act ctt c
Gln Val Leu Ala Gln Lys Val Ala Arg Thr Leu
20 25

81

<210> 4

<211> 26

<212> PRT

<213> Foot-and-mouth disease virus

<400> 4

Ser Thr Tyr Ser Arg Asn Ala Val Pro Asn Leu Arg Gly Asp Leu Gln
1 5 10 15

Val Leu Ala Gln Lys Val Ala Arg Thr Leu
20 25

<210> 5
 <211> 156
 <212> DNA
 <213> Foot-and-mouth disease virus
 <220>
 <221> CDS
 <222> (1)..(156)
 <223>
 <400> 5
 gga cct gtt tgt gct gaa gcc tca gat gtg tat agc cca tgt atg ata 48
 Gly Pro Val Cys Ala Glu Ala Ser Asp Val Tyr Ser Pro Cys Met Ile
 1 5 10 15
 gct agc act tat agt aga aat gct gtt cct aat ttg aga gga gat ctt 96
 Ala Ser Thr Tyr Ser Arg Asn Ala Val Pro Asn Leu Arg Gly Asp Leu
 20 25 30
 caa gtt ttg gct caa aag gtt gct cgg act ctt cct agc act cct cct 144
 Gln Val Leu Ala Gln Lys Val Ala Arg Thr Leu Pro Ser Thr Pro Pro
 35 40 45
 gct cca ttt tca 156
 Ala Pro Phe Ser
 50

Q12

<210> 6
 <211> 52
 <212> PRT
 <213> Foot-and-mouth disease virus
 <400> 6
 Gly Pro Val Cys Ala Glu Ala Ser Asp Val Tyr Ser Pro Cys Met Ile
 1 5 10 15
 Ala Ser Thr Tyr Ser Arg Asn Ala Val Pro Asn Leu Arg Gly Asp Leu
 20 25 30
 Gln Val Leu Ala Gln Lys Val Ala Arg Thr Leu Pro Ser Thr Pro Pro
 35 40 45
 Ala Pro Phe Ser
 50

34
-3-

<210> 7
 <211> 69
 <212> DNA
 <213> Cowpea mosaic virus
 <220>
 <221> CDS
 <222> (1)..(69)
 <223>
 <400> 7
 cca tgt atg ata gct agc act cct cct gct cca ttt tca gac gtt aca 48
 Pro Cys Met Ile Ala Ser Thr Pro Pro Ala Pro Phe Ser Asp Val Thr
 1 5 10 15
 gca gta act ttt gac tta atc 69
 Ala Val Thr Phe Asp Leu Ile
 20

<210> 8
 <211> 23
 <212> PRT
 <213> Cowpea mosaic virus
 <400> 8
 Pro Cys Met Ile Ala Ser Thr Pro Pro Ala Pro Phe Ser Asp Val Thr
 1 5 10 15
 Ala Val Thr Phe Asp Leu Ile
 20

<210> 9
 <211> 69
 <212> DNA
 <213> Cowpea mosaic virus
 <220>
 <221> CDS
 <222> (1)..(69)
 <223>

<400> 9
cca tgt atg ata gct agc act cct cct gct cca ttt tca gac gtc aca 48
Pro Cys Met Ile Ala Ser Thr Pro Pro Ala Pro Phe Ser Asp Val Thr
1 5 10 15

gca gta act ttt gac tta atc 69
Ala Val Thr Phe Asp Leu Ile
20

<210> 10

<211> 23

<212> PRT

<213> Cowpea mosaic virus

<400> 10

Pro Cys Met Ile Ala Ser Thr Pro Pro Ala Pro Phe Ser Asp Val Thr
1 5 10 15

Ala Val Thr Phe Asp Leu Ile
20

<210> 11

<211> 67

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (3)..(65)

<223>

<400> 11
ct agc act gac cgc cct gag ggc atc gag gaa gag ggc ggt gag cgc 47
Ser Thr Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly Glu Arg
1 5 10 15

gat cgt gat cgt tcg gac gt 67
Asp Arg Asp Arg Ser Asp
20

<210> 12

<211> 21

<212> PRT

<213> Human immunodeficiency virus

<400> 12

Ser Thr Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly Glu Arg Asp
1 5 10 15

Arg Asp Arg Ser Asp
20

<210> 13

<211> 141

<212> DNA

<213> Human immunodeficiency virus

<220>

<221> CDS

<222> (1)..(141)

<223>

<400> 13

gga cct gtt tgt gct gaa gcc tca gat gtg tat agc cca tgt atg ata 48
Gly Pro Val Cys Ala Glu Ala Ser Asp Val Tyr Ser Pro Cys Met Ile
1 5 10 15

gct agc act gac cgc cct gag ggc atc gag gaa gag ggc ggt gag cgc 96
Ala Ser Thr Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly Glu Arg
20 25 30

gat cgt gat cgt tcg gac gtc aca gca gta act ttt gac tta atc 141
Asp Arg Asp Arg Ser Asp Val Thr Ala Val Thr Phe Asp Leu Ile
35 40 45

<210> 14

<211> 47

<212> PRT

<213> Human immunodeficiency virus

<400> 14

Gly Pro Val Cys Ala Glu Ala Ser Asp Val Tyr Ser Pro Cys Met Ile
1 5 10 15

Ala Ser Thr Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Gly Glu Arg
20 25 30

Asp Arg Asp Arg Ser Asp Val Thr Ala Val Thr Phe Asp Leu Ile
35 40 45

<210> 15

<211> 52

<212> DNA

<213> Human rhinovirus

<220>

<221> CDS

<222> (3)..(50)

<223>

<400> 15
ct agc act cct gct act gga atc gat aat cat aga gaa gct aaa ttg
Ser Thr Pro Ala Thr Gly Ile Asp Asn His Arg Glu Ala Lys Leu
1 5 10 15

47

gac gt
Asp

52

<210> 16

<211> 16

<212> PRT

<213> Human rhinovirus

<400> 16

Ser Thr Pro Ala Thr Gly Ile Asp Asn His Arg Glu Ala Lys Leu Asp
1 5 10 15

<210> 17

<211> 126

<212> DNA

<213> Human rhinovirus

25
-X-

<220>

<221> CDS

<222> (1)..(126)

<223>

<400> 17

gga cct gtt tgt gct gaa gcc tca gat gtg tat agc cca tgt atg ata 48
Gly Pro Val Cys Ala Glu Ala Ser Asp Val Tyr Ser Pro Cys Met Ile
1 5 10 15

gct agc act cct gct act gga atc gat aat cat aga gaa gct aaa ttg 96
Ala Ser Thr Pro Ala Thr Gly Ile Asp Asn His Arg Glu Ala Lys Leu
20 25 30

gac gtc aca gca gta act ttt gac tta atc 126
Asp Val Thr Ala Val Thr Phe Asp Leu Ile
35 40

<210> 18

<211> 42

<212> PRT

<213> Human rhinovirus

<400> 18

Gly Pro Val Cys Ala Glu Ala Ser Asp Val Tyr Ser Pro Cys Met Ile
1 5 10 15

Ala Ser Thr Pro Ala Thr Gly Ile Asp Asn His Arg Glu Ala Lys Leu
20 25 30

Asp Val Thr Ala Val Thr Phe Asp Leu Ile
35 40

<210> 19

<211> 18

<212> DNA

<213> Escherichia coli

<400> 19
agttactgct gtaacgctc 18

<210> 20

<211> 43

<212> DNA

<213> Cowpea mosaic virus

<400> 20

ccctgcagta atacgactca ctatagtatt aaaatcttaa tag

43

<210> 21

<211> 19

<212> DNA

<213> Escherichia coli

<400> 21

ctgctgtgac gtctgaaaa

19

<210> 22

<211> 22

<212> PRT

<213> Cowpea mosaic virus

<400> 22

Val Pro Asn Leu Arg Gly Asp Leu Gln Val Leu Ala Gln Lys Val Ala
1 5 10 15

Arg Thr Leu Pro Cys Gly
20

C12
cow